



## Pharmacist's Perspective: Understanding Dosing, Adherence and Drug Interactions

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**Andrew Schorr:**

Jigar, so you're a doctor of pharmacy. Not everybody processes medicine the same way. And somebody—well I'll give you an example. Who can drink coffee, Chad, maybe we can get a shot here for a second, who can drink coffee after 6:00 p.m. and still have a good night's sleep? Okay, most of us can't. So is that the way we process caffeine?

Is that the variability with how we process a substance?

**Dr. Trivedi**

Absolutely. I think with the medications, every one of us has a different way of how our body processes medications. Mainly, the liver is something that we look at when we try to talk about body processing the medication. Regardless of how young or how old you are, the liver is not going to process the medication the same way. So the availability of medication with a good liver versus someone who's young and someone who's old, I think that also is different. It's just part of what we know besides everything else that's going on in the patient. You're exactly right.

**Andrew Schorr:**

When you say everything going on. We have younger people like Bo. David, you're younger too. He doesn't have any gray hair. John, you don't have any gray hair either. He's a little older. But the point is some of us may be on other medicines.

**Dr. Trivedi**

Absolutely.

**Andrew Schorr:**

Diabetes, heart medicines, whatever, how do you balance that out to deal with these rare cancers we talked about and the other stuff we have going on?

**Dr. Trivedi:**

I know for a fact as a pharmacist when I work in clinics or even when I'm in the hospital one of my jobs is to look at the medications and see if a medication has an effect on another medication. Oftentimes in medicine, we try to weigh risk versus benefit to see how we can control someone's myelofibrosis when a patient is on ruxolitinib (Jakafi). And if they are on a medication that seems to interact with the medication, is there anything I can do as a pharmacist or we can do as a team to see if we can either change the medication so that the patient continues or someone is able to take their medication at full dose. Or we go on to mainly look for side effects.

So kind of educating patient and talking to them. We need to keep a close eye on this, because we know that you need both medications, and my job is going to help you look for the side effects. Your job is going to be to communicate it back to us as to how you're feeling. Because we know that we cannot remove the interacting medication, and we have to work with those and in those confines.

**Andrew Schorr:**

We're going to talk about clinical trials in a minute, which can come into play. We have approved therapies, we rattled them off. Many of them are pills. Used to be you'd come to a cancer center, and you were going to stick something in our veins, and Erin or the other nurses were going to watch it go in and have it. Then we go on with our life, and we'd come back a week later or whatever it was for whatever. Some of the shots sometimes are given in the clinic, sometimes not. But now we have pills. So what's our responsibility to take the medicine as prescribed? Because these guys do studies that say if you take this dose, we anticipate this safety and this effectiveness. So we have a responsibility, right? Talk about what we call adherence and why it's so important in cancer today.

**Dr. Trivedi**

I think the beauty about oral medication is that you have the luxury, you have the option to do something at your own time at your own convenience. At the same time, I think it puts the ball in your court to take the responsibility and take that medication as it's prescribed. Because as much as oral medication and oral chemotherapy have provided options to be at home, I think it has also put somewhat compliance at the forefront as to how important it is for you to take your medication as it's prescribed and whether that may be medication that needs to be taken on an empty stomach versus medication that needs to be taken with food.

Or the medication that can be taken either with or without food. I oftentimes will talk to patients and emphasize that while you take this oral medication I think consistency is key. Again, that does not mean that you are sort of always stuck to a routine or a regimen. I think if you try to be as consistent as possible, I think that allows your body to get the dose of medication that's needed, and obviously that allows us to see your progress and allows us to see how a patient is doing.

**Andrew Schorr:**

Okay. Now we're just going to talk about interactions for a second. So if you go to a retail pharmacy, hopefully now, the big chains, CVS and Walgreens and Rite Aid, they have all these computers to know the medications you're taking. A doctor of pharmacy there is maybe going to say oh something's blinking here, these medications may interact. Well, that has to do even with your diet.

What's the story about grapefruit juice and ruxolitinib? I used to love grapefruit juice. Why shouldn't I do it with my medicine?

**Dr. Trivedi:**

So the grapefruit juice tends to inhibit the metabolism of ruxolitinib, meaning that it will inhibit how a drug is broken down by the liver. So if the drug is not being broken down as it should, and ultimately leave the body, now the grapefruit juice is going to inhibit, and it's going to have more medication available into the system.

So as much as we like more medication, just because we want to treat myelofibrosis or whatever condition we are trying to treat with the ruxolitinib, we do tend to fall into territory of side effects—again, feeling more tired, more fatigue. So that is something that we really want patients to know. Again, I'm not talking about once in a while eating a grapefruit versus consistently being on a grapefruit that inhibits the medication's metabolism by the body.

**Andrew Schorr:**

Okay. So this goes back to communication. I'm just going to pick on Erin for one more second. People hate this, some people who are really into health food and, Bo, I know your wife had you eating the healthiest diet, and we're going to hear about that in a minute. There are various advertisements about boost your immunity. Dr. Srdan Vertovsek talked about a failure of the immune system.

So we see advertisements for products, or somebody wants to sell you something. That's our choice, of course. But you want to know about what we're taking. So we have to disclose this to you, Erin, you may talk to Jigar about it and say they're taking this supplement. Does that work against the cancer medication, right?

**Erin Blackwell:**

Absolutely. Every time a patient comes into the clinic, we evaluate what medications they're taking currently versus what we have previously documented that they're taking. So every time that we see the patients we're talking about what medications they're taking.

**Andrew Schorr:**

Let's go beyond prescription medications. If I bought something over the internet, the cure for cancer, or it's going to boost my immune system, you've got to hear about it, right?

**Erin Blackwell:**

Right. Even supplements are documented on your chart as—anything that you're ingesting.

**Andrew Schorr:**

Because these are all medications. A lot of the medications you've got come from plants, right?

**Dr. Trivedi**

Yes, they do. I think the problem with some of the medications is that they are not standardized. The way they are manufactured obviously the ingredients that are there in some of the over-the-counter medications it's something beyond the understanding of a pharmacist. Sometimes I feel like, oftentimes we really need to know what you are taking so that way as a pharmacist can go and find if there is any type of drug interaction that exists between the chemotherapy or the medication and the over-the-counter supplement.

**Andrew Schorr:**

Okay, so just to review. What's your story? Do you have other conditions? What's the plan? What else is going on in your life? What other things are going in your body? Eating, supplements, et cetera, to get the whole picture to go back to these guys to see how the plan is going.

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